Grade 9 - Examples

Evaluate:

a) $(2x^2 - 3x + 1) + (x^2 - x - 4)$

$= 2x^2 - 3x + 1 + x^2 - x - 4$

$= 2x^2 + x^2 - 3x - x + 1 - 4$

$= 3x^2 - 4x - 3$

b) $-(3 - 2x)$

$= -3 + 2x$

c) $-2(x^2 + 2x - 3)$

$= -2x^2 - 4x + 6$

d) $(2x^2 - 2x - 3) - (x^2 - 4x + 2)$

$= 2x^2 - 2x - 3 - x^2 + 4x - 2$

$= 2x^2 - x^2 - 2x + 4x - 3 - 2$

$= x^2 + 2x - 5$

3.4 Expanding and factoring Algebraic Expressions

- Use the base 10 blocks to show 2 x 3 = 6
- Now use the base 10 blocks to show 12 x 13 = 156
- In your models of 2 x 3 = 6 and 12 x 13 = 156, what do each of the following represent?

2: side _____ 12: side _____

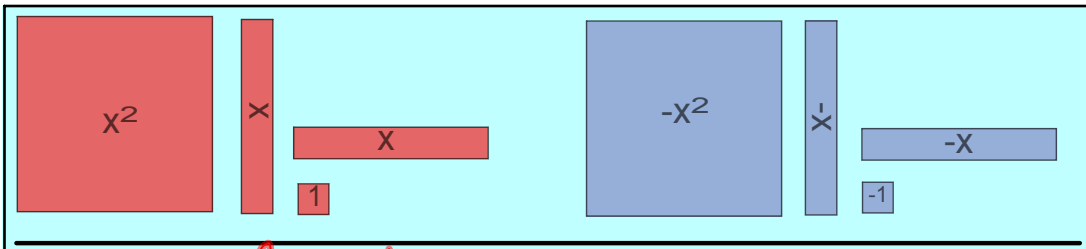
3: side _____ 13: side _____

6: area _____ Answer: area _____

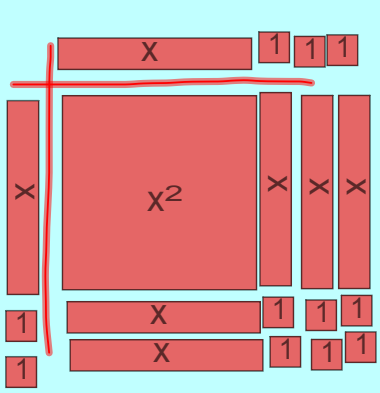
- Use the base 10 blocks to find the answers to
  15 x 17 = 255 and 14 x 18 = 252
- Can you now find the answer to 27 x 34?
- What are the limitations of base 10 blocks?
- Can you represent 15 x 17 by a drawing instead of using the base 10 blocks?
- Now try finding the answer to 25 x 13 by drawing an area model.

Recall: Multiplying two linear terms together forms an area.

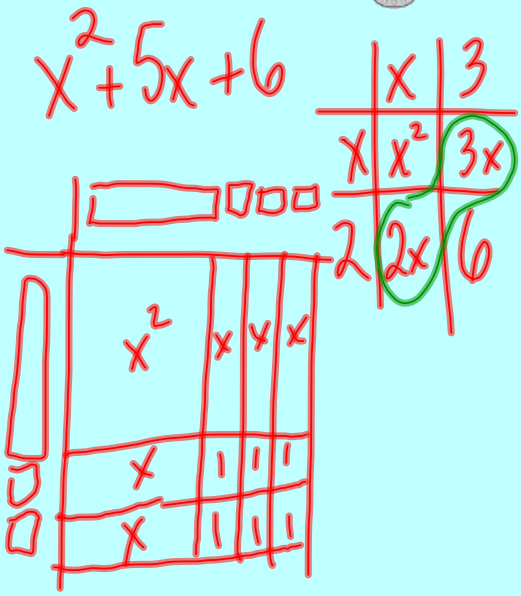
We can often represent this multiplication using algebra tiles.

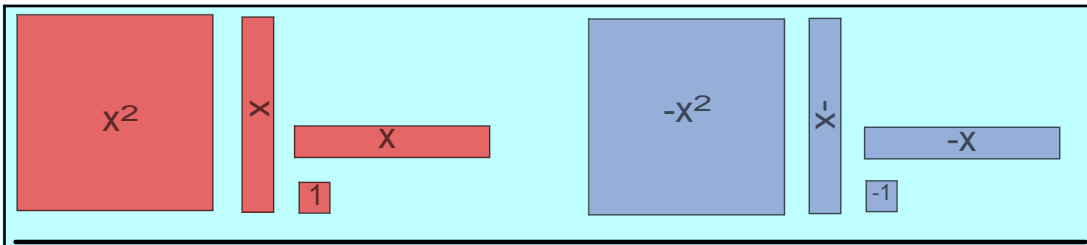


Evaluate: (x + 2)(x + 3)

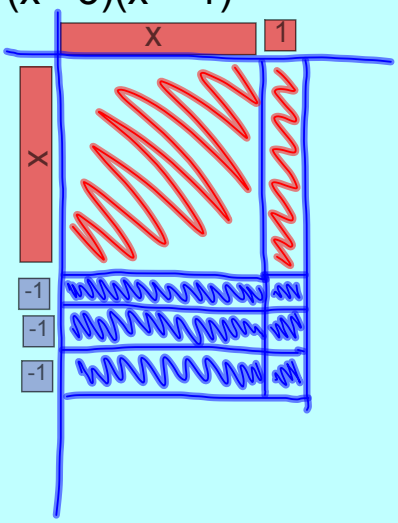


x^2+5x+6

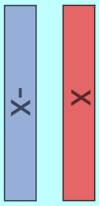




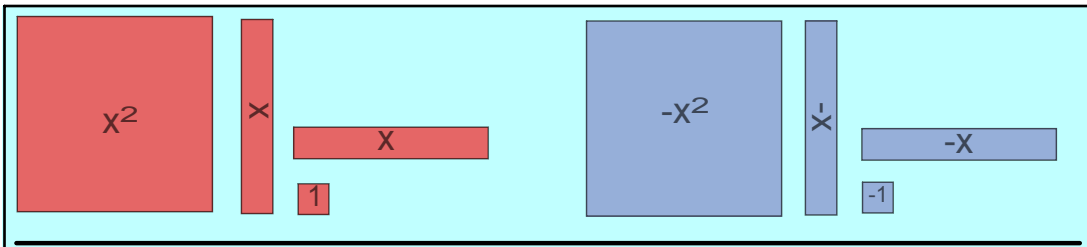
Evaluate: (x - 3)(x + 1)



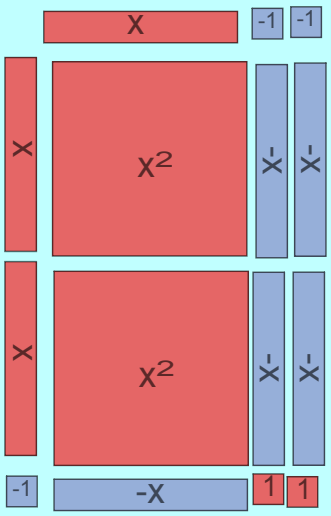
$x^2 - 2x - 3$



zero rule = 0

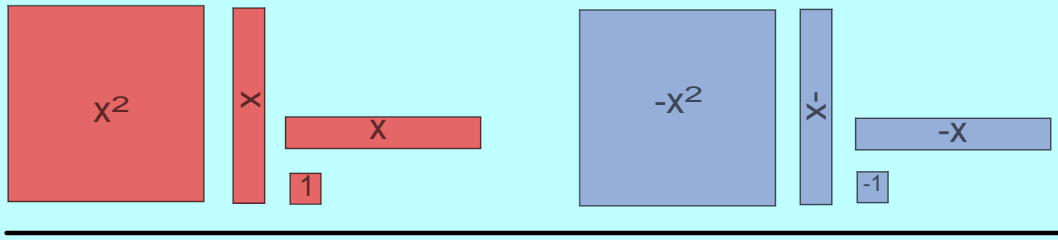


Evaluate: (2x - 1)(x - 2)



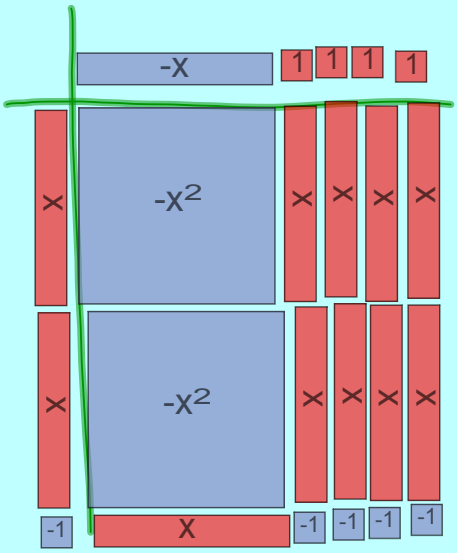
$2x^2 - 5x + 2$

	$2x$	-1
x	$2x^2$	$-x$
-2	$-4x$	$+2$

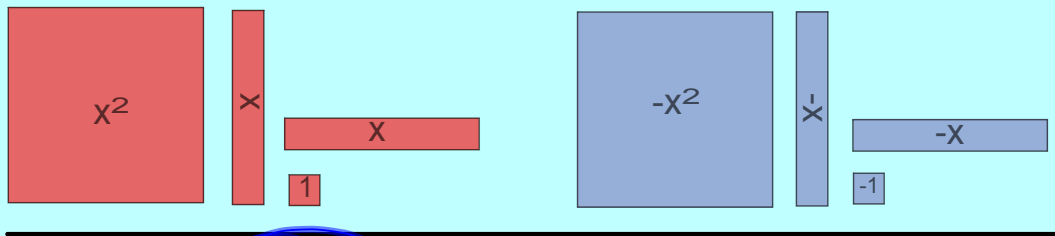


Evaluate: $(2x - 1)(4 - x)$

$-2x^2+9x-4$



	2x	-1
-x		
4		



Evaluate: $(x + y)(2x - y)$

$2xy - 1xy$

	2x	-y
x	$2x^2$	$-xy$
y	$2xy$	$-y^2$

$2x^2+xy-y^2$